

Tuesday, August 30, 2016 9:54:58 AM

Page 1

16/09/08

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Description Work Order Deviation				Disposition																					
Root Cause		FAULT CATEGORY																							
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Misidentified ☐		Past Due ☐																							

Work Order ID 150729

Tuesday, August 30, 2016 9:54:58 AM

150729

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Item ID: D6104-005 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Round Billet, 17-4
Start Date: 9/2/2016 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 9/16/2016 Req'd Qty: 10.00 ***10*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: MAT043	0.00							DAS 14 9-89
130						10	0		16/09/08
Packaging	Memo	0.02							
Packaging	LOCATION: MAT043								DAS 21 9-89
140	QC21- Final Inspection - Work Order Release	0.00							DAS 21 9-89
140									SEP 09 2016
QC	Memo	0.17							SEP 09 2016
Quality Control									DAS 21 9-89

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Tuesday, August 30, 2016 9:55:02 AM

Page 1

150729

D6104-005

Required Date: 9/16/2016

Required Qty: 10.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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10

D6104-005P

17-4 SS Roundbar 4.00"Od

$$10 \times 16 = 9 - 6$$

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 																		
Description Work Order Deviation				Disposition																					
							Completed By																		
							Lead hand / Supervisor Approval Verification																		
							QC / QA Coordinator Approval																		

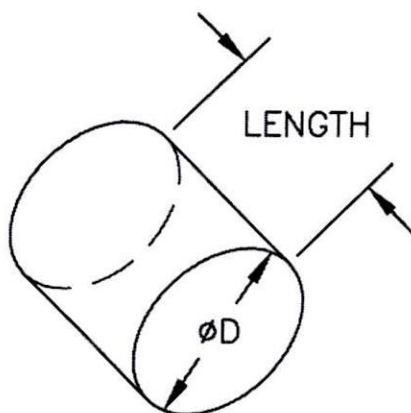
Root Cause				FAULT CATEGORY							
Environment ☐			No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐			Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐			Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐			Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐			Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐			Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐			Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐			Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐			Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐			Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐			Manufacturing Process ☐	OTHER : _____							
Misidentified ☐			Past Due ☐								



DESIGN RT	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29 [Signature]

SPECIFICATION CONTROL DRAWING



NO. 150929
160830
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK SAMPLE
ENGINEERING
RETURN TO
SUPPLY COPY

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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D6104-005

B150729

D6104-005

B150729

D6104-005

B150729

D6104-005

B150729

D6104-005

B150729

D6104-005

B150729

D6104-005

B150729

D6104-005

B150729

D6104-005
B150729

D6104-005
B150729



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO33493**

Purchase Order Date 8/31/2016

PO Print Date 8/31/2016

Page Number 2 of 3

Order From :
METAUX CASTLE
P.O. BOX 4090 STN A
TORONTO, ONTARIO M5W OE9
CANADA

VU-MET002

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via: Yours ppd

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

USD

Destination-Collect

Line Total: \$520.00

3	D6103-003P	Round Alum Billet	9/16/2016	10.00	\$36.30	\$363.00
			Yes	Each		
			9/16/2016			

AS PER DWG D6103 REV. B
B150622
MATERIAL: 7075-T7351 AS PER QQ-A-225/9
SIZE: 3.500" X 12.500" LONG

Line Total: \$363.00

4	D6104-005P	17-4 SS Roundbar 4.00"Od	9/16/2016	10.00	\$54.20	\$542.00
			Yes	Each		
			9/16/2016			

AS PER DWG D6104 REV. B
B150729
MATERIAL: 17-4 PH AS PER AMS 4643 OR AISI 630
SIZE: 4.00" X 5.10" LONG

Sp/6 9/16

Line Total: \$542.00

Note:

8/31/2016

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3066146

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped	F.O.B.	Freight Terms		Carrier		BOL No	
01-SEP-16	ORIGIN	Prepaid		MANITOULIN		3066146-2	

Shipment Details	Final Destination Branch - TOR
-------------------------	---------------------------------------

Order No 4480264	Line No 3	Item No 42464.MO	Description 4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643 ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com				
Purchase Order No 33493		Part Number YOUR ITEM NUMBER: D6104-005		Ordered Qty 7.00 PCS		Invoice Qty 7.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No. 120527805	Mill NORTH AMERICAN STAINLESS	Heat Number 	Mech Id	PCS 7	Width (IN)	Length (IN)	Shipped Qty(LBS) 131.1035

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.

Date Printed: 01-SEP-2016 05:16:47 PM



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

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These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Date:

Name:

Chris G.H.

SEP 01 2016



SP/6-9-6



METALLURGICAL TEST REPORT

North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

740 Imperial Road North

Certificate: 111969 2
Customer: 007209 001
Mail To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Ship To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Date: 11/06/2015 Page: 1

Steel: 630(17-4)

Finish: HR

Corrosion:

Red Ratio: 4.7 :1

Your Order: 29847

NAS Order: PN 0058423 01

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400 EN 10204 3.1, ASTM A484/11, MACRO OK, AMS 5643T
ASTM A564/13, AMS 2303, ASME SA564-07, ASTM F899/11 (CHEM ONLY)
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. and air cooled to RT
UT per API6A PSL3, ASTM A388-S1 criteria, UT passed
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

DAS
14
9-89

11/09/08

Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BH5047 2		4.0000		1,041	144.00	2	1	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/08

HEAT	CM	C %	CB %	CO %	CR %	CU %	MN %	MO %	N %	NI %
W5L9	US	.0229	.1760	.0920	15.3830	3.0225	.7720	.0930	.0276	4.2110
	P %	S %	SI %	TA %	TI %					
	.0200	.0285	.6295	.0080	.0020					

MECHANICAL PROPERTIES

Product Id	l d o i c r	HB No.	Grain No.	Ferrite %	TS-900CAP KSI	YS-900CAP KSI	EL-900CAP % 4D	RA-900CAP %	RC-900CAP No.	FREQ. No.
BH5047 2	R L	341.0	8.0	.10	200.24	175.93	12.88	44.20	42.5	.20

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

ABHIJEET BHAVE

ABHIJEET BHAVE

11/06/2015



METALLURGICAL TEST REPORT

North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

740 Imperial Road North

Certificate: 111969 2
Customer: 007209 001
Mail To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Ship To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Date: 11/06/2015 Page: 2

Steel: 630(17-4)

Finish: HR

Corrosion:

Red Ratio: 4.7 :1

Your Order: 29847

NAS Order: PN 0058423 01

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/11, MACRO OK, AMS 5643T
ASTM A564/13, AMS 2303, ASME SA564-07, ASTM F899/11 (CHEM ONLY)
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. and air cooled to RT
UT per API6A PSL3, ASTM A388-S1 criteria, UT passed
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BH5047 2		4.0000		1,041	144.00	2	1	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/08

MECHANICAL PROPERTIES

Product Id	1 d o i c r	SEV. No.
BH5047 2	R L	.11

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

ABHIJEET BHAVE

11/06/2015

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3066146

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 01-SEP-16	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 3066146-2	

Shipment Details	Final Destination Branch - TOR
-------------------------	---------------------------------------

Order No 4480264	Line No 4	Item No 42464.MO	Description 4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643 ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com				
Purchase Order No 33493		Part Number YOUR ITEM NUMBER: D6104-005		Ordered Qty 3.00 PCS		Invoice Qty 3.00 PCS	
Details			ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS				
Delivery No. 120527815	Mill NORTH AMERICAN STAINLESS	Heat Number 	Mech Id	PCS 3	Width (IN)	Length (IN)	Shipped Qty(LBS) 56.1872



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

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These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Chris Galt

Date:

Name:

SEP 01 2016





METALLURGICAL TEST REPORT

North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

740 Imperial Road North

Certificate: 111969 2
Customer: 007209 001
Mail To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Ship To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Date: 11/06/2015 Page: 1

Steel: 630 (17-4)

Finish: HR

Your Order: 29847

NAS Order: PN 0058423 01

Corrosion:

Red Ratio: 4.7 :1

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/11, MACRO OK, AMS 5643T
ASTM A564/13, AMS 2303, ASME SA564-07, ASTM F899/11 (CHEM ONLY)
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. and air cooled to RT
UT per API6A PSL3, ASTM A388-S1 criteria, UT passed
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

DAS
14
9-89
11/09/08

Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BH5047 2		4.0000		1,041	144.00	2	1	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/08

HEAT	CM	C %	CB %	CO %	CR %	CU %	MN %	MO %	N %	NI %
W519	US	.0229	.1760	.0920	15.3830	3.0225	.7720	.0930	.0276	4.2110
	P %	S %	SI %	TA %	TI %					
	.0200	.0285	.6295	.0080	.0020					

MECHANICAL PROPERTIES

Product Id	l d o i c r	HB No.	Grain No.	Ferrite %	TS-900CAP KSI	YS-900CAP KSI	EL-900CAP % 4D	RA-900CAP %	RC-900CAP No.	FREQ. No.
BH5047 2	R L	341.0	8.0	.10	200.24	175.93	12.88	44.20	42.5	.20

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

ABHIJEET BHAVE

ABHIJEET BHAVE

11/06/2015



740 Imperial Road North

METALLURGICAL TEST REPORT

North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

Certificate: 111969 2
Customer: 007209 001
Mail To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Ship To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Date: 11/06/2015 Page: 2

Steel: 630(17-4)

Finish: HR

Your Order: 29847

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Red Ratio: 4.7 :1

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Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/11, MACRO OK, AMS 5643T
ASTM A564/13, AMS 2303, ASME SA564-07, ASTM F899/11 (CHEM ONLY)
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. and air cooled to RT
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H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BH5047 2		4.0000		1,041	144.00	2	1	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/08

MECHANICAL PROPERTIES

Product Id	1 d o i c r	SEV. No.
BH5047 2	R L	.11

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

ABHIJEET BHAVE

ABHIJEET BHAVE

11/06/2015

MATERIAL RECEIPT INSPECTION FORM

PO BATCH NO 33493/15072

MATERIAL DL104-005
DATE 11/09/08

MATERIAL CERTIFIED yes
QUANTITY RECEIVED 10
QUANTITY INSPECTED 10
QUANTITY REJECTED _____

THICKNESS ORDERED 4.00
THICKNESS RECEIVED 4.040
SHEET SIZE ORDERED _____
SHEET SIZE RECEIVED _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	☒	☒	
CORRECT FINISH	☒	☒	
CORROSION	☒	☒	
CORRECT GRAIN DIRECTION	☒	☒	
CORRECT MATERIAL	☒	☒	17-4PH
CORRECT THICKNESS	☒	☒	4.00
PHOTO REQUIRED	☒	☒	
CORRECT MATERIAL	☒	☒	
CORRECT REF # TO LINK CERT	☒	☒	HEAT # W5L9
CORRECT MATERIAL IDENTIFICATION	☒	☒	DL104-005
CORRECT M# ON THE MATERIAL	☒	☒	B150729
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	☒	☒	
DOES THIS REQUIRE AN EXTRUSION REPORT	☒	☒	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK RECORD RESULTS BELOW			
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS DUROMETER READING	HRC	HRB	DUR A

Testers located in the Quality Office

QC 18 INSPECTION

INSPECTED BY DAS
DATE 11/09/08

SIGNED OFF BY _____
DATE _____

ENGINEERING SIGNOFF (if required)

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order Update only ☐

Work Order: _____ Part No. _____ NCR No. _____	IF ANY QUESTIONS PLEASE SEE QC COORDINATOR	DISPOSITION 1. Rework ☐ 2. Scrap ☐ 3. Use-as-is ☐ 4. Suspected Unapproved ☐	INSTRUCTIONS FOR INSPECTING SKIDTUBE & SHEET EXTRUSION 1. SKIDTUBE 2. MACHINING 3. THERMOFORMING 4. LARGE FANS 5. AFTER MATERIAL PASSES INSPECTION 6. HAVE MATERIAL STOCKING REQUIREMENTS	AGAINST DEPARTMENT/PROCESS Cross tube ☐ Small Fan ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐	MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval QC / QA Coordinator Approval	
Date: _____		Description Work Order Deviation		Disposition		
Root Cause		MATERIAL		FAULT CATEGORY		
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature ☐ Set-up ☐ BOM/Route ☐ Broken/Damaged/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Counter sink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Fault/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐
OTHER : _____		ROUND, & SHEET STOCK				